

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A method for forming a porous insulating layer, comprising:

~~the~~ a solution-applying step of applying a solution in which an insulating material is dissolved, onto a workpiece;

~~the~~ a solidified layer-forming step of forming a solidified layer by cooling the solution applied onto the workpiece to a temperature less than or equal to the melting point of a solvent contained in the solution;

~~the~~ a drying step of removing the solvent contained in the solidified layer to make the solidified layer porous; and

~~the~~ a firing step of hardening the porous layer obtained by the drying step.

2. (Currently Amended) The method for forming a porous insulating layer according to Claim 1, wherein, in the solution-applying step, the solution is applied so as to cover unevenness of the surface of the workpiece, and to flatten the surface of the applied layer.

3. (Original) The method for forming a porous insulating layer according to Claim 1, wherein the drying step is performed under a reduced pressure.

4. (Original) The method for forming a porous insulating layer according to Claim 2, wherein the drying step is performed under a reduced pressure.

5. (Original) The method for forming a porous insulating layer according to Claim 1, wherein the solidified layer-forming step is performed after part of the solvent is removed from the solution applied onto the workpiece.

6. (Currently Amended) The method for forming a porous insulating layer according to Claim 1, wherein the firing step is followed by an airtight treatment, the air tight treatment for eliminating the air permeability of the hardened porous solidified layer.

7. (Currently Amended) The method for forming a porous insulating layer according to Claim 1, wherein the solidified layer-forming step comprises ~~is performed~~ by rapidly cooling the solution.

8. (Currently Amended) The method for forming a porous insulating layer according to Claim 1, wherein the application of the solution to the workpiece comprises ~~is performed by~~ silt coating.

9. (Original) A porous insulating layer-forming apparatus comprising:
a solution-applying portion for applying a solution in which an insulating material is dissolved, onto a workpiece;

a solidified layer-forming portion for cooling the solution applied onto the workpiece to a temperature less than or equal to the melting point of the solvent contained in the solution to form a solidified layer;

a vacuum drying portion for removing the solvent contained in the solidified layer by decompression to make the solidified layer porous; and

a firing portion for hardening the porous layer obtained in the vacuum drying portion.

10. (Currently Amended) ~~A~~The porous insulating layer-forming apparatus according to Claim 9, wherein the solidified layer-forming portion is provided in a decompression chamber of the vacuum drying portion.

11. (Original) An electronic device including a porous insulting layer formed by the method for forming a porous insulating layer according to Claim 1.

12. (Original) An electronic device including a porous insulating layer formed by use of the porous insulating layer-forming apparatus according to Claim 9.

13. (New) A method for forming a porous insulating layer, comprising:
applying a solution containing an insulating material onto a substrate;
cooling the solution to a temperature less than or equal to the melting point of a solvent contained in the solution to form a gel layer;
vaporizing the solvent contained in the gel layer to make a solidified layer, porous layer;
hardening the porous layer; and
melting a surface of the porous layer to enclose pores of the surface of the porous layer.

14. (New) The method of claim 13, wherein the step of vaporizing the solvent comprises sublimation of the solvent.

15. (New) The method of claim 13, wherein the insulating material comprises an inorganic insulating material selected from the group consisting of silicon dioxide (SiO_2) and silicon nitride (Si_3N_4).

16. (New) The method of claim 13, wherein the insulating material comprises an organic insulating material selected from the group consisting of tetraethoxysilane and alkoxide compounds.

17. (New) The method of claim 13, wherein the porous layer comprises a porosity of 90%.

18. (New) The method of claim 13, wherein the melting step comprises instantaneously exposing the porous layer to a high temperature with a flushing device.